Int. J. Radiation Oncology Biol. Phys., Vol. 27, pp. III–XXI
Printed in the U.S.A. All rights reserved.

0360-3016/93 $6.00 + .00
Copyright © 1993 Pergamon Press Ltd.

INTERNATIONAL JOURNAL OF
RADIATION ONCOLOGY BIOLOGY•PHYSICS

VOLUME 27, NUMBER 1 SEPTEMBER 1, 1993

TABLE OF CONTENTS

Forthcoming Articles and Issues iii

Editor's Note
P. Rubin 1

● *CLINICAL ORIGINAL CONTRIBUTIONS*

Treatment of Stage I Testis Seminoma by Radiotherapy: Long-Term Results—A 30-Year Experience
S. Giacchetti, Y. Raoul, P. Wibault, J. P. Droz, B. Court and F. Eschwege 3

Results of a Policy of Surveillance in Stage I Testicular Seminoma
P. R. Warde, M. K. Gospodarowicz, P. J. Goodman, J. F. Sturgeon, M. A. Jewett, C. N. Catton, H. Richmond, G. M. Thomas, W. Duncan and A. J. Munro 11

Prognosis of Human Chorionic Gonadotropin-Producing Seminoma Treated by Postoperative Radiotherapy
R. O. Mirimanoff, M. Sinzig, M. Krüger, R. Miralbell, A. Thöni, G. Ries, J.-F. Bosset, J. Bernier, M. Bolla, T. D. Nguyen, U. M. Lütolf, R. Hünig, J. Kurtz, R. Greiner and P. A. Coucke 17

Renal Tolerance to Nonhomogeneous Irradiation: Comparison of Observed Effects to Predictions of Normal Tissue Complication Probability from Different Biophysical Models
M. Flentje, F. Hensley, G. Gademann, M. Menke and M. Wannenmacher 25

Clinical Relevance of Trans-Rectal Ultrasound, Biopsy, and Serum Prostate-Specific Antigen Following External Beam Radiotherapy for Carcinoma of the Prostate
J. Crook, S. Robertson, G. Collin, V. Zaleski and B. Esche 31

The Prognostic Significance of a Single Serum Prostate-Specific Antigen Value Beyond Six Months After Radiation Therapy for Adenocarcinoma of the Prostate
G. K. Zagars 39

Prostate-Specific Antigen Density: A New Prognostic Indicator for Prostate Cancer
P. G. Zentner, L. K. Pao, M. C. Benson, D. J. McMahon and P. B. Schiff 47

Chemoradiotherapy Versus Radiotherapy Alone for Anal Cancer: A Retrospective Comparison
A. Allal, J. M. Kurtz, G. Pipard, M.-C. Marti, R. Miralbell, Y. Popowski and R. Egeli 59

Radiation Treatment of Epidermoid Cancer of the Anus
C. Svensson, S. Goldman and B. Friberg 67

Definitive Postoperative Irradiation of Bile Duct Carcinoma with Charged Particles and/or Photons
R. Schoenthaler, J. R. Castro, F. E. Halberg and T. L. Phillips 75

● *BIOLOGY ORIGINAL CONTRIBUTIONS*

***In Vitro* Characterization of Radiotherapy-Induced Morphonuclear Modifications on Chemosensitive as Opposed to Chemoresistant Neoplastic Cells**
M. Gozy, O. Pauwels, P. Gasperin, Jr., J.-L. Pasteels, P. Van Houtte and R. Kiss 83

Treatment of Radiation Nephropathy with ACE Inhibitors
J. E. Moulder, B. L. Fish and E. P. Cohen 93

● *HYPERTHERMIA ORIGINAL CONTRIBUTIONS*

Phantom Evaluation of Heating of Superficial Tissues Located Above Interstitial Microwave Antennas
L. B. Leybovich, W. G. Devanna, A. C. Gray, R. G. Kurup and C. J. Fan 101

Interstitial Thermoradiotherapy with Ferromagnetic Implants for Locally Advanced and Recurrent Neoplasms
C. F. Mack, B. Stea, J. M. Kittelson, D. S. Shimm, P. K. Sneed, T. L. Phillips, P. S. Swift, K. Luk, P. R. Stauffer, K. W. Chan, R. Steeves, J. R. Cassady and T. C. Cetas 109

● *PHASE I/II CLINICAL TRIALS*

Accelerated Hyperfractionated Hepatic Irradiation in the Management of Patients with Liver Metastases: Results of the RTOG Dose Escalating Protocol
A. H. Russell, C. Clyde, T. H. Wasserman, S. S. Turner and M. Rotman 117

● *BRIEF COMMUNICATION*

Prostatic-Specific Antigen Doubling Times in Patients with Prostate Cancer: A Potentially Useful Reflection of Tumor Doubling Time
G. E. Hanks, A. D'Amico, B. E. Epstein and T. E. Schultheiss 125

● *TECHNICAL INNOVATIONS AND NOTES*

A Nomograph for Permanent Implants of Palladium-103 Seeds
L. L. Anderson, J. V. Moni and L. B. Harrison 129

Online Repositioning During Treatment of the Prostate: A Study of Potential Limits and Gains
J. M. Balter, G. T. Y. Chen, C. A. Pelizzari, S. Krishnasamy, S. Rubin and S. Vijayakumar 137

Digitally Reconstructed Fluoroscopy and Other Interactive Volume Visualizations in 3-D Treatment Planning
T. J. Cullip, J. R. Symon, J. G. Rosenman and E. L. Chaney 145

Dosimetric Evaluation of Total Scalp Irradiation Using a Lateral Electron-Photon Technique
S. S. Tung, A. S. Shiu, G. Starkschall, W. H. Morrison and K. R. Hogstrom 153

● *ONCOLOGY INTELLIGENCE*

The Combination of Cis-platin Based Chemotherapy and Radiation in the Treatment of Muscle-Invading Transitional Cell Cancer of the Bladder
A. L. Zietman, W. U. Shipley and D. S. Kaufman 161

● *EDITORIALS*

Refining the Predictive Power of the Prostate-Specific Antigen
M. J. Zelefsky, Z. Fuks and S. A. Leibel 171

Anal Cancer—Radiation Alone or with Cytotoxic Drugs?
B. J. Cummings 173

● *CORRESPONDENCE*

Response to Dr. Cummings
J. M. Kurtz 177

In Reference to Jack F. Fowler's Alpha, Beta, Alpha/Beta and S
U. F. Rosenow 177

Dr. Fowler's Rebuttal of Dr. Rosenow's Letter
J. F. Fowler 178

Predictive Value of Perfusion Lung Scans on Post Irradiation Pulmonary Function
R. P. Abratt 178

Response to Dr. Abratt
W. J. Curran, Jr. and P. J. Moldofsky 178

● *MEETINGS* 181

● *ERRATUM* 185

VOLUME 27, NUMBER 2 SEPTEMBER 30, 1993

TABLE OF CONTENTS

Editor's Note
P. Rubin 187

● *CLINICAL ORIGINAL CONTRIBUTIONS*

20-Year Experience in Childhood Craniopharyngioma
S. Hetelekidis, P. D. Barnes, M. L. Tao, E. G. Fischer, L. Schneider, R. M. Scott and N. J. Tarbell 189

Final Results of a Study of Escalating Doses of Hyperfractionated Radiotherapy in Brain Stem Tumors in Children: A Pediatric Oncology Group Study
C. R. Freeman, J. P. Krischer, R. A. Sanford, M. E. Cohen, P. C. Burger, R. del Carpio, E. C. Halperin, L. Munoz, H. S. Friedman and L. E. Kun 197

Iododeoxyuridine (IUdR) Combined with Radiation in the Treatment of Malignant Glioma: A Comparison of Short Versus Long Intravenous Dose Schedules (RTOG 86-12)
R. C. Urtasun, D. Cosmatos, J. DelRowe, T. J. Kinsella, S. Lester, T. Wasserman and D. S. Fulton 207

Tolerance of Cranial Nerves of the Cavernous Sinus to Radiosurgery
R. B. Tishler, J. S. Loeffler, L. D. Lunsford, C. Duma, E. Alexander III, H. M. Kooy and J. C. Flickinger 215

Spinal Cord Ependymomas: A Retrospective Analysis of 59 Cases
J. N. Waldron, N. J. Laperriere, L. Jaakkimainen, W. J. Simpson, D. Payne, M. Milosevic and C. S. Wong 223

The Management of Metastatic Spinal Cord Compression: A Radiotherapeutic Success Ceiling
M. Leviov, J. Dale, M. Stein, M. Ben-Shahar, M. Ben-Arush, D. Milstein, D. Goldsher and A. Kuten 231

Neutron Versus Photon Irradiation for Unresectable Salivary Gland Tumors: Final Report of an RTOG-MRC Randomized Clinical Trial
G. E. Laramore, J. M. Krall, T. W. Griffin, W. Duncan, M. P. Richter, K. R. Saroja, M. H. Maor and L. W. Davis 235

Mitomycin C as an Adjunct to Postoperative Radiation Therapy in Squamous Cell Carcinoma of the Head and Neck: Results from Two Randomized Clinical Trials
B. G. Haffty, Y. H. Son, C. T. Sasaki, R. Papac, D. Fischer, S. Rockwell, A. Sartorelli and J. J. Fischer 241

Place of Iridium 192 Implantation in Definitive Irradiation of Faucial Arch Squamous Cell Carcinomas
J.-J. Mazeron, Y. Belkacemi, J.-M. Simon, C. Le Pechoux, M. Martin, E. Haddad, P. Piedbois, E. Calitchi, W. Strunski, R. Peynegre, J.-P. Le Bourgeois and B. Pierquin 251

Long-Term Results of a Prospective Randomized Trial of Adjuvant Brachytherapy in the Management of Completely Resected Soft Tissue Sarcomas of the Extremity and Superficial Trunk
L. B. Harrison, F. Franzese, J. J. Gaynor and M. F. Brennan 259

Radiation Therapy for Squamous Cell Carcinoma of the Nasal Vestibule
M. Poulsen and S. Turner 267

Results of High-Dose Thoracic Irradiation Incorporating Beam's Eye View Display in Non-Small Cell Lung Cancer: A Retrospective Multivariate Analysis
M. B. Hazuka, A. T. Turrisi III, S. T. Lutz, M. K. Martel, R. K. Ten Haken, M. Strawderman, P. L. Borema and A. S. Lichter 273

Therapeutic Factors Influencing the Cosmetic Outcome and Late Complications in the Conservative Management of Early Breast Cancer
R. Sarin, K. A. Dinshaw, S. K. Shrivastava, V. Sharma and S. M. Deore 285

Poor Survival of Black Patients in Carcinoma of the Endometrium
H. Aziz, M. Rotman, F. Hussain, G. Smith, E. Chan, K. Choi, C. Sohn, J. Halpern, D. Schwartz, I. Aral, R. Fruchter and E. Serur 293

● *BIOLOGY ORIGINAL CONTRIBUTIONS*

Intratumoral Heterogeneity of Malignant Gliomas Measured *In Vitro*
A. Allam, A. Taghian, D. Gioioso, M. Duffy and H. D. Suit 303

The Effect of Fractionated Doses of Radiation on Mouse Spinal Cord
Y.-C. Lo, J. M. G. Taylor, W. H. McBride and H. R. Withers 309

Cytotoxicity of Restriction Enzyme-Induced DNA Strand Breaks in Radiosensitive and Radioresistant Human Tumor Cell Lines
Y. Kinashi, H. Nagasawa and J. B. Little 319

Radiobiological Modeling of Combined Targeted ^{131}I Therapy and Total Body Irradiation for Treatment of Disseminated Tumors of Differing Radiosensitivity
A. E. Amin, T. E. Wheldon, J. A. O'Donoghue and A. Barrett 323

● *HYPERTHERMIA ORIGINAL CONTRIBUTION*

Temperature Differentials Between Treatment and Pretreatment Temperatures Correlate with Local Control Following Radiotherapy and Hyperthermia
D. S. Kapp, A. N. Peters Brown, W. Cox and R. S. Cox 331

● *PHYSICS ORIGINAL CONTRIBUTIONS*

Effect of Set-Up Error on the Dose Across the Junction of Matching Cranial-Spinal Fields in the Treatment of Medulloblastoma
E. J. Holupka, J. L. Humm, N. J. Tarbell and G. K. Svensson 345

A Theoretical Analysis of Hemodynamic and Biomechanical Alterations in Intracranial AVMs After Radiosurgery
E. H. Lo 353

● *PHASE I/II CLINICAL TRIALS*

Dose Intensification in Curative Head and Neck Cancer Radiotherapy—Linear Quadratic Analysis and Preliminary Assessment of Clinical Results
C. J. McGinn, P. M. Harari, J. F. Fowler, C. N. Ford. G. M. Pyle and T. J. Kinsella 363

Synchronous Radiotherapy and Chemotherapy in the Treatment of Nasopharyngeal Carcinoma
S. L. Turner and K. W. Tiver 371

● *BRIEF COMMUNICATIONS*

Carcinoma *In Situ* of the Glottic Larynx: The Role of Radiotherapy
D. A. Fein, W. M. Mendenhall, J. T. Parsons, S. P. Stringer, N. J. Cassisi and R. R. Million 379

Radiotherapy of Cutaneous B Cell Lymphomas: Our Experience in 31 Cases
R. Piccinno, M. Caccialanza, E. Berti and L. Baldini 385

● *TECHNICAL INNOVATIONS AND NOTES*

Total Skin Electron Therapy: A Technique Which Can Be Implemented on a Conventional Electron Linear Accelerator
D. G. Van Der Merwe 391

Potential Human Error in Setting Stereotactic Coordinates for Radiosurgery: Implications for Quality Assurance
J. C. Flickinger, L. D. Lunsford, D. Kondziolka and A. Maitz 397

Doses to Radiation Sensitive Organs and Structures Located Outside the Radiotherapeutic Target Volume for Four Treatment Situations
M. L. Foo, E. C. McCullough, R. L. Foote, T. M. Pisansky and E. G. Shaw 403

The Influence of Air Cavities on Interface Doses for Photon Beams
E. E. Klein, L. M. Chin, R. K. Rice and B. J. Mijnheer 419

Entrance and Exit Dose Regions for a Clinac-2100C
E. E. Klein and J. A. Purdy 429

The Effect of Setup Uncertainties on the Treatment of Nasopharynx Cancer
M. A. Hunt, G. J. Kutcher, C. Burman, D. Fass, L. Harrison, S. Leibel and Z. Fuks 437

Verification of Lung Attenuator Positioning Before Total Body Irradiation Using an Electronic Portal Imaging Device
D. J. Gladstone, M. van Herk and L. M. Chin 449

● *RADIATION ONCOLOGIC IMAGING*

Positron Emission Tomography with Fluorodeoxyglucose to Evaluate Tumor Response and Control After Radiation Therapy
L. Chaiken, S. Rege, C. Hoh, Y. Choi, B. Jabour, G. Juillard, R. Hawkins and R. Parker 455

● *ONCOLOGY INTELLIGENCE*

Cisplatin and Radiotherapy in the Management of Locally Advanced Head and Neck Cancer
A. A. Forastiere 465

● *EDITORIALS*

Craniopharyngioma Revisited
M. Brada and D. G. T. Thomas 471

Cavernous Sinus Cranial Neuropathies: Is There a Dose–Response Relationship Following Radiosurgery?
M. P. Mehta and T. J. Kinsella 477

Measurable Impact: Multimodality Therapy of Head and Neck Cancer
E. E. Vokes and R. R. Weichselbaum 481

● *CORRESPONDENCE*

Response to Editorial by Zelefsky *et al.*
G. E. Hanks 483

The Radiobiological Basis of Concomitant Cisplatin and Radiotherapy
S. Senan 483

Response to Dr. Senan
M. G. Trovò, G. D. Zanelli and Colleagues 484

Shorter Treatment Courses or Larger Daily Doses?
J. B. Healy 484

Regarding Million's Editorial on the "Relative Clinical Influence of Tumor Dose Versus Dose Per Fraction . . . Following Larynx Radiotherapy"
J. Ramsay 485

Response to Editorial by Dr. Earle
R. A. Behar 485

● *MEETINGS* 487

VOLUME 27, NUMBER 3 OCTOBER 20, 1993

TABLE OF CONTENTS

Forthcoming Articles and Issues xvii

Editor's Note
P. Rubin 491

● *CLINICAL ORIGINAL CONTRIBUTIONS*

Interruptions of High-dose Radiation Therapy Decrease Long-term Survival of Favorable Patients with Unresectable Non-small Cell Carcinoma of the Lung: Analysis of 1244 Cases from 3 Radiation Therapy Oncology Group (RTOG) Trials
J. D. Cox, T. F. Pajak, S. Asbell, A. H. Russell, J. Pederson, R. W. Byhardt, B. Emami and M. Roach III 493

Neutron Vs. Photon Radiation Therapy for Inoperable Regional Non-small Cell Lung Cancer: Results of a Multicenter Randomized Trial
W.-J. Koh, J. M. Krall, L. J. Peters, M. H. Maor, G. E. Laramore, C. M. Burnison, L. W. Davis, S. Zink and T. W. Griffin 499

Local Control in Medically Inoperable Lung Cancer: An Analysis of Its Importance in Outcome and Factors Determining the Probability of Tumor Eradication
D. E. Dosoretz, D. Galmarini, J. H. Rubenstein, M. J. Katin, P. H. Blitzer, S. A. Salenius, R. A. Dosani, M. Rashid, G. Mestas, S. E. Hannan, T. T. Chadha, S. B. Bhat, A. D. Siegel, T. Chandrahasa and M. P. Metke 507

Radiation Therapy Alone for Stage I Non-small Cell Lung Cancer
L. Kaskowitz, M. V. Graham, B. Emami, K. J. Halverson and C. Rush 517

Postoperative Radiotherapy After Pneumonectomy: Impact of Modern Treatment Facilities
P. Phlips, P. Rocmans, P. Vanderhoeft and P. Van Houtte 525

Inoperable Endobronchial Obstructing Lung Cancer Treated with Combined Endobronchial and External Beam Irradiation: A Dosimetric Analysis
G. W. Cotter, C. Lariscy, K. E. Ellingwood and D. Herbert 531

The Influence of Field Size and Other Treatment Factors on Pulmonary Toxicity Following Hyperfractionated Irradiation for Inoperable Non-small Cell Lung Cancer (NSCLC)—Analysis of a Radiation Therapy Oncology Group (RTOG) Protocol
R. W. Byhardt, L. Martin, T. F. Pajak, K. H. Shin, B. Emami and J. D. Cox 537

Breast Conservation Therapy for Early Stage Breast Carcinoma with Outstanding 10-Year Locoregional Control Rates: A Case for Aggressive Therapy to the Tumor Bearing Quadrant
R. K. Schmidt-Ullrich, D. E. Wazer, T. DiPetrillo, D. J. Marchant, T. J. Smith, H. Safaii, C. Schmid and M. J. Homer 545

Breast-Conserving Surgery and Definitive Radiation: A Comparison Between Quadrantectomy and Local Excision with Special Focus on Local-Regional Control and Cosmesis
M. A. Fagundes, H. M. Fagundes, C. S. Brito, M. H. Fagundes, A. Daudt, L. A. Bruno, S. J. Azevedo and L. A. Fagundes 553

The Use of Iodine-125 Seeds as a Substitute for Iridium-192 Seeds in Temporary Interstitial Breast Implants
F. Vicini, J. White, G. Gustafson, R. C. Matter, D. H. Clarke, G. Edmundson and A. Martinez 561

The Role of Mastectomy in Patients with Stage I-II Breast Cancer Presenting with Gross Multifocal or Multicentric Disease or Diffuse Microcalcifications
B. Fowble, I.-T. Yeh, D. J. Schultz, L. J. Solin, E. F. Rosato, L. Jardines, J. Hoffman, B. Eisenberg, M. C. Weiss and G. Hanks 567

Local Recurrence Versus New Primary: Clinical Analysis of 82 Breast Relapses and Potential Applications for Genetic Fingerprinting
B. G. Haffty, D. Carter, S. D. Flynn, D. B. Fischer, D. E. Brash, J. Simons, A. M. Ziegler and J. J. Fischer 575

Primary Radiation Therapy for Endometrial Carcinoma: A Case Controlled Study
P. G. Rose, S. Baker, M. Kern, T. J. Fitzgerald, W. K. Tak, F. R. Reale, B. E. Nelson and R. E. Hunter 585

Analysis of Prognostic Factors in Localized Gastric Lymphoma: The Importance of Bulk of Disease
R. K. Valicenti, T. H. Wasserman and N. A. Kucik 591

Non-Hodgkin's Lymphoma of the Thyroid Gland: Prognostic Factors and Treatment Outcome
R. W. Tsang, M. K. Gospodarowicz, S. B. Sutcliffe, J. F. G. Sturgeon, T. Panzarella, B. J. Patterson and the Princess Margaret Hospital Lymphoma Group 599

● *HYPERTHERMIA ORIGINAL CONTRIBUTION*

Timing and Sequence of Hyperthermia in Fractionated Radiotherapy of a Murine Fibrosarcoma
Y. Nishimura and M. Urano 605

● *PHASE I/II CLINICAL TRIALS*

Combined Betaseron R (Recombinant Human Interferon Beta) and Radiation for Inoperable Non-small Cell Lung Cancer
S. McDonald, A. Y. Chang, P. Rubin, J. Wallenberg, I. S. Kim, S. Sobel, J. Smith, P. Keng and A. Muhs 613

Preoperative Concomitant Cisplatin/VP16 and Radiotherapy in Stage III Non-small Cell Lung Cancer
M. Palazzi, I. Cataldo, A. Gramaglia, D. De Toma, F. Milani and G. Ravasi 621

● *BIOLOGY ORIGINAL CONTRIBUTIONS*

Radioresponsiveness of Human Glioma, Sarcoma, and Breast Cancer Spheroids Depends on Tumor Differentiation
M. Stuschke, V. Budach and H. Sack 627

Expression of Immediate Early Genes After Treatment of Human Astrocytoma Cells with Radiation and Taxol
R. M. Gubits, C. R. Geard and P. B. Schiff 637

Cell Cycle Alterations, Apoptosis, and Response to Low-dose-rate Radioimmunotherapy in Lymphoma Cells
R. M. Macklis, B. A. Beresford, S. Palayoor, S. Sweeney and J. L. Humm 643

Ultrasonic Measurements of Breathing Rate in Rats and Computer Assisted Analysis
C. K. Haston, C. H. Newcomb, K. Grant, R. P. Hill and J. Van Dyk 651

The Use of Biphasic Linear Ramped Pulsed Field Gel Electrophoresis to Quantify DNA Damage Based on Fragment Size Distribution
T. S. Lawrence, D. P. Normolle, M. A. Davis and J. Maybaum 659

Interaction of the Bioreductive Drug SR 4233 and Photodynamic Therapy Using Photofrin in a Mouse Tumor Model
P. Baas, H. Oppelaar, M. Stavenuiter, N. van Zandwijk and F. A. Stewart 665

● *BRIEF COMMUNICATIONS*

Primary Soft Tissue Sarcomas of the Breast: Local-regional Control with Post-operative Radiotherapy
P. A. S. Johnstone, L. J. Pierce, M. J. Merino, J. C. Yang, A. H. Epstein and T. F. DeLaney 671

Ir-192, Low Dose Rate Endobronchial Brachytherapy in the Treatment of Malignant Airway Obstruction
P. I. Raju, T. Roy, R. D. McDonald, B. R. Harrison, C. Crim, T. M. Hyers, S. J. Marshall, J. A. Ohar and K. S. Naunheim 677

● *TECHNICAL INNOVATIONS AND NOTES*

Independent Collimator Dosimetry for a Dual Photon Energy Linear Accelerator
E. D. Slessinger, R. L. Gerber, W. B. Harms, E. E. Klein and J. A. Purdy 681

Use of V_{eff} and Iso-NTCP in the Implementation of Dose Escalation Protocols
R. K. Ten Haken, M. K. Martel, M. L. Kessler, M. B. Hazuka, T. S. Lawrence, J. M. Robertson, A. T. Turrisi and A. S. Lichter 689

Combining Multileaf Fields to Modulate Fluence Distributions
J. M. Galvin, X.-G. Chen and R. M. Smith 697

The Use of On-Line Image Verification to Estimate the Variation in Radiation Therapy Dose Delivery
J. M. Michalski, J. W. Wong, R. L. Gerber, D. Yan, A. Cheng, M. V. Graham, M. A. Renna, P. J. Sawyer and C. A. Perez 707

Calculation and Measurement of the Dose to Points Outside the Primary Beam For Co-60 Gamma Radiation
P.-H. van der Giessen and C. W. Hurkmans 717

Anatomic Variation of Gynecologic Brachytherapy Prescription Points
P. W. Grigsby, A. Georgiou, J. F. Williamson and C. A. Perez 725

Preservation of Parotid Function After External Beam Irradiation in Head and Neck Cancer Patients: A Feasibility Study Using 3-Dimensional Treatment Planning
M. B. Hazuka, M. K. Martel, L. Marsh, A. S. Lichter and G. T. Wolf 731

● *ONCOLOGY INTELLIGENCE*

Radiation and Simultaneous Cisplatin in Non-small Cell Lung Cancer
P. Bonomi 739

● *EDITORIALS*

Is a Nihilist Approach to Lung Cancer Still Justified?
W. T. Sause 747

When is More Better?
A. Recht 749

Can Interferon Beta Make the Radiation Therapy Team for Treatment of Non-small Cell Lung Cancer?
R. W. Byhardt 753

● *CORRESPONDENCE*

Response to Drs. Brada and Thomas
S. Hetelekidis and N. J. Tarbell 757

Reply to Dr. Abraham Recht's Editorial
R. Schmidt-Ullrich, D. E. Wazer and T. DiPetrillo 757

● *MEETINGS* 759

VOLUME 27, NUMBER 4 NOVEMBER 15, 1993

TABLE OF CONTENTS

Forthcoming Articles and Issues xvii

Editor's Note
P. Rubin 763

● *CLINICAL ORIGINAL CONTRIBUTIONS*

A Selective Approach to Adjunctive Therapy for Cancer of the Rectum
M. Mohiuddin, N. Ahmad and G. Marks 765

High-dose Preoperative Radiation for Cancer of the Rectum: Impact of Radiation Dose on Patterns of Failure and Survival
N. R. Ahmad, G. Marks and M. Mohiuddin 773

The Reality of Radical Sphincter Preservation Surgery for Cancer of the Distal 3 cm of Rectum Following High-dose Radiation
G. Marks, M. Mohiuddin and L. Masoni 779

Postoperative Local Radiotherapy in Rectal Cancer: Treatment Results with Limited Radiation Fields
R. Wiggenraad, M. Raming, J. Hermans, J. Biesta, F. Hoekstra and H. de Jager-Nowak 785

Carcinoma of the Cervix: Predictive Value of Clinical and Magnetic Resonance (MR) Imaging Assessment of Prognostic Factors
H. Hricak, J. M. Quivey, Z. Campos, V. Gildengorin, T. Hindmarsh, K. G. Bis, J. L. Stern and T. L. Phillips 791

Treatment Results of High Dose Rate Brachytherapy in Patients with Carcinoma of the Cervix
P. Selke, T. N. Roman, L. Souhami, C. R. Freeman, B. G. Clark, M. D. C. Evans, C. Pla and E. B. Podgorsak 803

Local Control Prediction by Histologic Grading of Radiation Effects with Drill Biopsy Specimens for Uterine Cervical Cancer
T. Arai, T. Nakano and K. Oka 811

Treatment of Endometrial Carcinoma with Radiation Therapy Alone
P. A. Kupelian, P. J. Eifel, C. Tornos, T. W. Burke, L. Delclos and M. J. Oswald 817

Vaginal Stenosis and Sexual Function Following Intracavitary Radiation for the Treatment of Cervical and Endometrial Carcinoma
D. Watkins Bruner, R. Lanciano, M. Keegan, B. Corn, E. Martin and G. E. Hanks 825

Patterns of Disease Recurrence Following Definitive Therapy of Adenocarcinoma of the Pancreas Using Surgery and Adjuvant Radiotherapy: Correlations of a Clinical Trial
P. A. Johnstone and W. F. Sindelar 831

Esthesioneuroblastoma: The Role of Adjuvant Radiation Therapy
R. L. Foote, A. Morita, M. J. Ebersold, K. D. Olsen, J. E. Lewis, L. M. Quast, J. A. Ferguson and W. M. O'Fallon 835

Neoadjuvant Chemotherapy and Radiotherapy in Locally Advanced Esophagus Carcinoma: Long-term Results
J. J. Valerdi, M. Tejedor, J. J. Illarramendi, M. A. Dominguez, F. Arias, E. Martinez and R. Lopez 843

Palladium-103 Versus Iodine-125 for Ophthalmic Plaque Radiotherapy
P. T. Finger, D. Lu, A. Buffa, D. S. DeBlasio and J. L. Bosworth 849

Radiation Therapy Salvage of Hodgkin's Disease Following Chemotherapy Failure
B. R. Leigh, K. A. Fox, C. F. Mack, M. Baier, T. P. Miller and J. R. Cassady 855

Radiation Treatment of Heterotopic Bone Formation in the Temporomandibular Joint Articulation
E. D. Durr, E. G. Turlington and R. L. Foote 863

● *PHASE I/II CLINICAL TRIALS*

Weekly Cisplatin Plus External Beam Radiotherapy and High Dose Rate Brachytherapy in Patients with Locally Advanced Carcinoma of the Cervix
L. Souhami, R. Seymour, T. N. Roman, G.W. Stanimir, M. Trudeau, B. G. Clark and C. R. Freeman 871

Salvage Whole Abdomen Radiation Therapy: Its Role in Ovarian Cancer
S. Reddy, M.-S. Lee, E. Yordan, J. Graham, P. Sarin and F. R. Hendrickson 879

Adjuvant Postoperative Accelerated Hyperfractionated Radiotherapy in Rectal Cancer: A Feasability Study
P. A. Coucke, J.-F. Cuttat and R. O. Mirimanoff 885

● *BIOLOGY ORIGINAL CONTRIBUTIONS*

The Relationship Between Proliferative and Oxygenation Status in Spontaneous Canine Tumors
E. M. Zeman, D. P. Calkins, J. M. Cline, D. E. Thrall and J. A. Raleigh 891

Radiation Resistance of Primary Clonogenic Blasts from Children with Acute Lymphoblastic Leukemia
F. M. Uckun, D. Aeppli and C. W. Song 899

Study of Biological Effects of Varying Mixtures of Cf-252 and Gamma Radiation on the Acute Radiation Syndromes: Relevance to Clinical Radiotherapy of Radioresistant Cancer
Y. Maruyama, J. M. Feola and J. Wierzbicki 907

● *TECHNICAL INNOVATIONS AND NOTES*

Localization of the Prostatic Apex for Radiation Therapy Using Implanted Markers
H. M. Sandler, R. L. Bree, P. W. McLaughlin, H. B. Grossman and A. S. Lichter 915

Immobilization Improves the Reproducibility of Patient Positioning During Six-field Conformal Radiation Therapy for Prostate Carcinoma
S. A. Rosenthal, M. Roach III, B. J. Goldsmith, E. C. Doggett, B. Pickett, H.-S. Yuo, E. M. Soffen, R. L. Stern and J. K. Ryu 921

Pre-installation Empirical Testing of Room Shielding for High Dose Rate Remote Afterloaders
E. E. Klein, P. W. Grigsby, J. F. Williamson and A. S. Meigooni 927

Advances in 3-Dimensional Radiation Treatment Planning Systems: Room-view Display with Real Time Interactivity
J. A. Purdy, W. B. Harms, J. W. Matthews, R. Drzymala, B. Emami, J. R. Simpson, J. Manolis and F. U. Rosenberger 933

On-line Portal Imaging: Image Quality Defining Parameters for Pelvic Fields—A Clinical Evaluation
D. Verellen, W. De Neve, F. Van den Heuvel, M. Coghe, O. Louis and G. Storme 945

Total Scalp Treatment of Mycosis Fungoides: The 4 × 4 Technique
D. E. Mellenberg and S. L. Schoeppel 953

● *ONCOLOGIC IMAGING*

Role of Bipedal Lymphangiogram in Radiation Treatment Planning for Cervix Cancer
S. C. Pendlebury, S. Cahill, A. J. Crandon and C. A. Bull 959

● *SPECIAL FEATURES*

Inguinofemoral Radiation of NO,N1 Vulvar Cancer May be Equivalent to Lymphadenectomy if Proper Radiation Technique is Used
D. G. Petereit, M. P. Mehta, D. A. Buchler and T. J. Kinsella 963

Femoral Vessel Depth and the Implications for Groin Node Radiation
W.-J. Koh, M. Chiu, K. J. Stelzer, B. E. Greer, D. Mastras, N. Comsia, K. J. Russell and T. W. Griffin 969

● *ONCOLOGY INTELLIGENCE*

On the Lack of Demonstrated Clinical Benefit of Neoadjuvant Cisplatinum Therapy for Cervical Cancer
R. A. Potish and L.B. Twiggs 975

● *EDITORIALS*

Value of 3-D Imaging for Staging Cervical Cancers and Predicting Behavior
Y. Maruyama 981

The Advantage of an X-Ray Visible Marker of the Prostatic Apex
W. U. Shipley 985

Groin Node Irradiation for Vulvar Cancer: Treatment Planning Must Do More than Scratch the Surface
R. M. Lanciano and B. W. Corn 987

● *CORRESPONDENCE*

Response to Editorial by Drs. Lanciano and Corn
D. G. Petereit, M. P. Mehta, D. A. Buchler and T. J. Kinsella 991

Radiotherapy in the Treatment of Vulvar Carcinoma
D. Nori and I. Aral 991

Groin Irradiation is a Viable Option in Carcinoma of the Vulva
E. Ben-Josef and A. Aref 992

Response to the Letters of Drs. Nori and Aral and Drs. Ben-Josef and Aref
F. B. Stehman, B. N. Bundy and G. M. Thomas 992

● *MEETINGS* 995

VOLUME 27, NUMBER 5 DECEMBER 1, 1993

TABLE OF CONTENTS

Forthcoming Articles and Issues xvii

Editor's Note
P. Rubin 999

● *CLINICAL ORIGINAL CONTRIBUTIONS*

The Role of Radiation Therapy in the Treatment of Acute Lymphoblastic Leukemia with Lymphomatous Presentation: A Report from the Childrens Cancer Group
J. M. Cherlow, P. G. Steinherz, H. N. Sather, P. S. Gaynon, N. J. Grossman, J. H. Kersey, H. S. Johnstone, J. C. Breneman, M. E. Trigg and G. D. Hammond 1001

Is a Surgical Resection Leaving Positive Margins of Benefit to the Patient with Locally Advanced Squamous Cell Carcinoma of the Head and Neck: A Comparative Study Using the Intergroup Study 0034 and the Radiation Therapy Oncology Group Head and Neck Database
G. E. Laramore, C. B. Scott, D. E. Schuller, R. E. Haselow, T. J. Ervin, R. Wheeler, M. Al-Sarraf, R. A. Gahbauer, J. R. Jacobs, J. G. Schwade and B. H. Campbell 1011

Radiotherapy Alone or Combined with Neck Dissection for T_1-T_2 Carcinoma of the Pyriform Sinus: An Alternative to Conservation Surgery
W. M. Mendenhall, J. T. Parsons, S. P. Stringer, N. J. Cassisi and R. R. Million 1017

Lhermitte's Sign: Incidence and Treatment Variables Influencing Risk After Irradiation of the Cervical Spinal Cord
D. A. Fein, R. B. Marcus, Jr., J. T. Parsons, W. M. Mendenhall and R. R. Million 1029

Pituitary Adenomas: Long-term Results for Radiotherapy Alone and Post-operative Radiotherapy
M. N. Hughes, K. J. Llamas, M. E. Yelland and L. B. Tripcony 1035

Age as a Prognostic Factor for Breast and Regional Nodal Recurrence Following Breast Conserving Surgery and Irradiation in Stage I and II Breast Cancer
K. J. Halverson, C. A. Perez, M. E. Taylor, R. Myerson, G. Philpott, J. R. Simpson, G. Tucker and C. Rush 1045

Overall Treatment Time in Advanced Cervical Carcinomas: A Critical Parameter in Treatment Outcome
T. Girinsky, A. Rey, B. Roche, C. Haie, A. Gerbaulet, H. Randrianarivello and D. Chassagne 1051

A Randomized Prospective Trial of Radiation Therapy for Aids-Associated Kaposi's Sarcoma
K. J. Stelzer and T. W. Griffin 1057

Intraoperative Radiotherapy for Esophageal Carcinoma—Significance of IORT Dose for the Incidence of Fatal Tracheal Complication
T. Arimoto, A. Takamura, M. Tomita, K. Suzuki, M. Hosokawa and Y. Kaneko 1063

Influence of Intraluminal Brachytherapy Dose on Complications in the Treatment of Esophageal Cancer
M. U. Kumar, K. Swamy, S. S. Supe and N. Anantha 1069

Management of Epistaxis in Rendu-Osler Disease: Is Brachytherapy Effective?
S. Pohar, J.-J. Mazeron, M. Ghilezan, J.-P. Le Bourgeois and B. Pierquin 1073

Malignant Epidural Spinal Cord Compression Associated with a Paravertebral Mass: Its Radiotherapeutic Outcome on Radiosensitivity
R. Y. Kim, J. W. Smith, S. A. Spencer, R. F. Meredith and M. M. Salter 1079

External Radiotherapy Prior to Thyroid Cancer: A Case-Control Study
A. Hallquist, L. Hardell and P.-O. Löfroth 1085

Outcome and Prognostic Factors in Soft Tissue Sarcoma in the Adult
J. LeVay, B. O'Sullivan, C. Catton, R. Bell, V. Fornasier, B. Cummings, Y. Hao, D. Warr and I. Quirt 1091

● *BIOLOGY ORIGINAL CONTRIBUTIONS*

Should Carbogen and Nicotinamide be Given Throughout the Full Course of Fractionated Radiotherapy Regimens?
A. M. Rojas, H. Johns and P. R. Fiat 1101

Effect of Irradiation on Healing of Newly Made Colonic Anastomoses in the Rat
J. Biert, T. Wobbes, T. Hendriks and J. Hoogenhout 1107

***In Vivo* Radiosensitization Efficacy of Ku-2285 and Etanidazole at Clinically Relevant Low Radiation Doses**
N. Oya, Y. Shibamoto, K. Sasai, T. Sugiyama and M. Abe 1113

Derivations of Relative Biological Effectiveness for the High-LET Radiations Produced During Boron Neutron Capture Irradiations of the 9L Rat Gliosarcoma *In Vitro* and *In Vivo*
J. A. Coderre, M. S. Makar, P.L. Micca, M. M. Nawrocky, H. B. Liu, D. D. Joel, D. N. Slatkin and H. I. Amols 1121

Calculating Potential Doubling Time Using Monoclonal Antibodies Specific for Two Halogenated Thymidine Analogues
A. Pollack, R. A. White, S. Cao, M. L. Meistrich and N. H. A. Terry 1131

Tissue Tolerance of Normal and Surgically Manipulated Canine Liver to Intraoperative Radiation Therapy (IORT)
M. Cromheecke, J. Vermeij, A. J. K. Grond, A. W. T. Konings, J. Oldhoff and H. J. Hoekstra 1141

● *PHASE I/II CLINICAL TRIALS*

Erythropoietin Increases Hemoglobin in Cancer Patients During Radiation Therapy
R. S. Lavey and W. H. Dempsey 1147

High-dose Preoperative External Beam and Intraoperative Irradiation for Locally Advanced Pancratic Cancer
G. R. Garton, L. L. Gunderson, D. M. Nagorney, J. H. Donohue, J. K. Martin, D. C. McIlrath and S. S. Cha 1153

Reirradiation for Rectal Cancer and Surgical Resection After Ultra High Doses
M. Mohiuddin, V. Lingareddy, J. Rakinic and G. Marks 1159

Potential Doubling Time in Head and Neck Tumors Treated by Primary Radiotherapy: Preliminary Evidence for a Prognostic Significance in Local Control
R. Corvò, W. Giaretti, G. Sanguineti, E. Geido, R. Orecchia, S. Barra, G. Margarino, A. Bacigalupo and V. Vitale 1165

● *BRIEF COMMUNICATIONS*

Prospective Comparison of *In Vitro* Normal Cell Radiosensitivity and Normal Tissue Reactions in Radiotherapy Patients
F. B. Geara, L. J. Peters, K. K. Ang, J. L. Wike and W. A. Brock 1173

Radiation Therapy in Endemic (African) Kaposi's Sarcoma
M. E. Stein, R. Lakier, A. Kuten, D. Spencer, P. Ruff and W. R. Bezwoda 1181

A Multivariate Analysis of Prognostic Factors in Management of Pineal Tumor
C. K. S. Chao, S.-T. Lee, F.-J. Lin, S. G. Tang and W.-M. Leung 1185

Use of Ultrasound to Guide Radiation Boost Planning Following Lumpectomy for Carcinoma of the Breast
C. Leonard, C. L. Harlow, C. Coffin, J. Drose, L. Norton and J. Kinzie 1193

● *TECHNICAL INNOVATIONS AND NOTES*

An Evaluation of Two Methods of Anatomical Alignment of Radiotherapy Portal Images
J. M. Michalski, J. W. Wong, W. R. Bosch, D. Yan, A. Cheng, R. L. Gerber, M. V. Graham, D. Low, R. K. Valicenti and J. V. Piephoff 1199

A Technique Using Parallel-Opposed High Energy Electron Beams for Reirradiation of Tumors Near the Spinal Cord
M. Gosselin, E. B. Podgorsak, M. D. C. Evans, M. Pla and G. Shenouda 1207

Concurrent Treatment Planning for Outpatient High Dose Rate Prostate Template Implants
G. K. Edmundson, N. R. Rizzo, M. Teahan, D. Brabbins, F. A. Vicini and A. Martinez 1215

A Technique for Fractionated Stereotactic Radiotherapy in the Treatment of Intracranial Tumors
E. B. Podgorsak, L. Souhami, J.-L. Caron, M. Pla, B. Clark, C. Pla and P. Cadman 1225

● *SPECIAL FEATURES*

Radiation Therapy Oncology Group: Radiosurgery Quality Assurance Guidelines
E. Shaw, R. Kline, M. Gillin, L. Souhami, A. Hirschfeld, R. Dinapoli and L. Martin 1231

Consensus Guidelines for High Dose Rate Remote Brachytherapy in Cervical, Endometrial, and Endobronchial Tumors
S. Nag, A. A. Abitbol, L. L. Anderson, J. C. Blasko, A. Flores, L. B. Harrison, B. S. Hilaris, A. A. Martinez, M. P. Mehta, D. Nori, A. Porter, K. J. Rossman, B. L. Speiser, J. A. Stitt, A. M. N. Syed and B. Vikram 1241

● *ONCOLOGY INTELLIGENCE*

Intraperitoneal Cisplatin and Regional Hyperthermia for Ovarian Carcinoma
K. A. Leopold, J. R. Oleson, D. Clarke-Pearson, J. Soper, A. Berchuck, T. V. Samulski, R. L. Page, J. Blivin, J. K. Tomberlin and M. W. Dewhirst 1245

● *EDITORIAL*

Pituitary Adenomas: Evolving Diagnosis and Management
P. W. Grigsby 1253

● *CORRESPONDENCE*

Response to Editorial by Dr. Maruyama
H. Hricak 1255

Radiation to the Intact Groin
F. B. Stehman, G. M. Thomas and M. Varia 1255

● *MEETINGS* 1257

● *ERRATUM* 1260

● *LIST OF CONTENTS, AUTHOR INDEX, AND SUBJECT INDEX FOR VOLUME 27, 1993* I